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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CHIEN, LUCY P	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/823,265	TSUKAGOSHI ET AL.	
	Examiner	Art Unit	
	Lucy P. Chien	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) *6-9,11,12,24-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,10,13-19,22 and 23* is/are rejected.

7)☒ Claim(s) *20 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

Applicant's election without traverse of electing linking claims 1,10,13,14 and 23 and Group I claims 2-5,15-18,19-22 readable thereon in the reply filed on September 9, 2005 is acknowledged.

Examiner will examine the elected claims 1,10,13,14 and 23 and Group I claims 2-5,15-18,19-22.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1,2,4,10,13-15,17,19,22,23 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al (US 20020018162).

Regarding Claim 1,

Suzuki et al discloses (Figure 21 and (Figure 22 which is a detailed configuration of the LC panel 232 of figure 21)) a liquid crystal display device having a microlens array (Figure 22, 242) provided on a luminous flux incidence side (Figure 22, where L1 is located is the incidence side), the liquid crystal display device comprising an optical compensation layer (Figure 21, 233,234) made of an uniaxial crystal which is an inorganic material (Page 20, [0227]) and having an optical axis inclined with respect to a liquid crystal panel surface (Page 20, [0227]), at least on one of a luminous flux incidence side (Figure 22, where L1 is located is the incidence side) and a luminous flux emission side of the liquid crystal panel (Figure 22, where 1b is located is the emission side).

Regarding Claim 2,15,

Suzuki et al further discloses the inorganic material forming the optical compensation layer is uniaxial crystal. (Page 20, [0227]).

Regarding Claim 4,17,

Suzuki et al further discloses the inorganic material forming the optical compensation layer is crystal. (Page 20, [0227]).

Regarding Claim 10,23,

Suzuki et al discloses (Figure 20 and Figure 21) wherein the optical compensation layer has an outer size equal to the effective display area of the liquid crystal panel ((Figure 20, 224,224R,224G,224B) , (Figure 21, 232,233,234))

Regarding Claim 13,

Suzuki et al discloses (Figure 21 and (Figure 22 which is a detailed configuration of the LC panel 232 of figure 21)) a liquid crystal display device having a microlens array (Figure 22, 242) provided on a luminous flux incidence side (Figure 22, where L1 is located is the incidence side), the liquid crystal display device comprising two optical compensation layer (Figure 21, 233,234) made of an uniaxial crystal which is an inorganic material (Page 20, [0227]) and having an optical axis inclined with respect to a liquid crystal panel surface (Page 20, [0227]), on a luminous flux incidence side (Figure 22, where L1 is located is the incidence side).

Regarding Claim 14,

Suzuki et al discloses (Figure 20, shows the overall configuration of a projection type liquid crystal display apparatus according the same embodiment as Figure 21,22) a

light source (211,211a) a liquid crystal display device having a microlens array (Figure 22, 242) provided on a luminous flux incidence side (Figure 22, where L1 is located is the incidence side), as a spatial light modulator. An illuminating optical system (Figure 20, 212,213,) for guiding a luminous flux emitted from a light source to the liquid crystal display device and thus illuminating the liquid crystal display device, and an image-forming lens (Figure 20, 226) for forming an image of the liquid crystal display device. the liquid crystal display device comprising an optical compensation layer (Figure 21, 233,234) made of an uniaxial crystal which is an inorganic material (Page 20, [0227]) and having an optical axis inclined with respect to a liquid crystal panel surface (Page 20, [0227]), at least on one of a luminous flux incidence side (Figure 22, where L1 is located is the incidence side) and a luminous flux emission side of the liquid crystal panel (Figure 22, where 1b is located is the emission side).

Regarding Claim 19,

Suzuki et al discloses ((Figure 25) illustrates various types of axial directions of optical elements of the liquid crystal panel portion shown in FIG. 21)) wherein the direction of projection of optical axis (233, P3) of the optical compensation layer (233) of the liquid crystal display device to the liquid crystal panel surface (232) is substantially parallel to at least one of the direction of projection of pre-tilt of liquid crystal molecules (R2) near a board surface on the luminous flux incidence side (shown where L0 is located) of the liquid crystal panel to the board surface and the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the

luminous flux emission side of the liquid crystal panel to the board surface (shown where plate 235 is located).

Regarding Claim 22,

Suzuki et al discloses ((Figure 25) illustrates various types of axial directions of optical elements of the liquid crystal panel portion shown in FIG. 21)) the liquid crystal display device comprising an optical compensation layer (Figure 21, 233,234) at least on one of a luminous flux incidence side (Figure 22, where L1 is located is the incidence side) and a luminous flux emission side of the liquid crystal panel (Figure 22, where 1b is located is the emission side). Wherein the direction of projection of optical axis (233, P3) of the optical compensation layer (233) of the liquid crystal display device to the liquid crystal panel surface (232) is substantially parallel to at least one of the direction of projection of pre-tilt of liquid crystal molecules (R2) near a board surface on the luminous flux incidence side (shown where L0 is located) of the liquid crystal panel to the board surface and the direction of projection of pre-tilt of liquid crystal molecules near a board surface on the luminous flux emission side of the liquid crystal panel to the board surface (shown where plate 235 is located).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3,5,16,18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 20020018162) in view of Nishida et al (US 6052168).

Regarding Claim 3,5,16,18,

Suzuki et al does not disclose the refractive index range.

Nishida et al discloses (Column 5,Row 49-56) Wherein Δn*d, which is the product of refractive index anisotropy Δ and thickness d of the inorganic material forming the optical compensation layer, is 165 nm which is less than 640 nm.

It would have been obvious to one of ordinary skill in the art, at the time of the invention to modify Suzuki et al's display to include Nishida et al's refractive index range motivated by the desire to incline the liquid crystal, which the refractive-index anisotropy generates. Therefore, the retardation to the transmitted light of the incidence-side polarizing plate occurs in the LC layer by this means the permittivity is increased. Thus, enhancing the view angle characteristic.

Allowable Subject Matter

Claim 20,21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding Claim 20,

Suzuki et al does not disclose when refractive index anisotropy of the inorganic material forming the optical compensation layer of the liquid crystal display device and refractive index of a liquid crystal layer of the liquid crystal panel have the same sign, the optical axis of the optical compensation layer and the optical axis of the liquid crystal layer are inclined in different directions with respect to the liquid crystal panel surface.

Regarding Claim 21,

Suzuki et al does not disclose when refractive index anisotropy of the inorganic material forming the optical compensation layer of the liquid crystal display device and refractive index of a liquid crystal layer of the liquid crystal panel have different sign, the optical axis of the optical compensation layer and the optical axis of the liquid crystal layer are inclined in the same directions with respect to the liquid crystal panel surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy P. Chien whose telephone number is 571-272-8579. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lucy Chien
Examiner
Art Unit 2871
LC

ROBERT KIM
SUPERVISORY PATENT EXAMINER